Standards Portfolio

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Homeland Security

Standards

Building confidence in homeland security technologies, products, services, personnel, and systems

MISSION:

Develop and coordinate the adoption of national standards and appropriate evaluation methods to meet homeland security mission needs

- Requirements Development
- Standards Development and Adoption
- Testing and Evaluation – Test Method Validation
- Conformity Assessment – Compliance Testing
- Coordination with Federal, state, local government, private sector and international standards community

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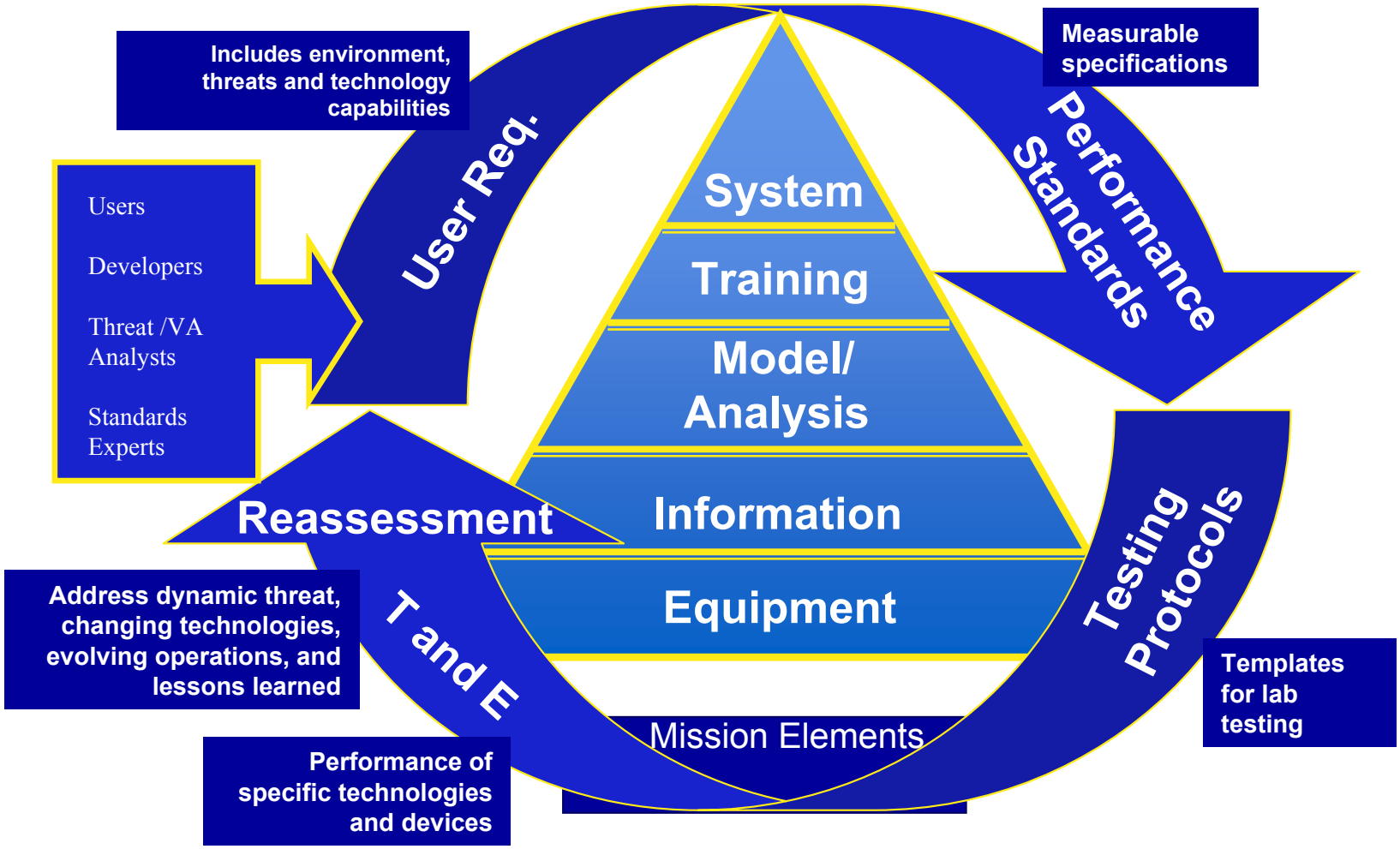
Standards Portfolio Process



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- **stand·ard (stan’dərd)** n. [[ME< OFr *estendard* < Frank **standord,* place of formation< Gmc * *standan,* to STAND + **ort,* a place, orig., a point, akin to OE *ord (*see ODD): hence, orig., a standing place]] 1 any figure or object, esp. a flag or a banner, used as en emblem or symbol of a leader, people, military unit, etc.; specif., *a*) *Heraldry* a long, tapering flag used as an ensign, as by a king *b) Mil.* The colors of a cavalry unit 2 something established for use as a rule or basis of comparison in measuring or judging capacity, quantity, content, extent, value, quality, etc. [*standard* of weight and measure] 3 a) the proportion of pure gold or silver and base metal prescribed for use in coinage b) the basis for the measure of value in a given monetary system (see GOLD STANDARD, SILVER STANDARD)……

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Regulatory Standard

- Promulgated by agencies that have statutory authority to protect people and the environment (e.g., OSHA, EPA)
- Numerical value based on a risk estimate
- For example, concentration of an agent for which a specified exposure would result in a 1 in 10,000 increase in mortality

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DHS Standards

- DHS lacks statutory authority to issue standards except in limited legacy programs – Coast Guard marine safety equipment
- Public Law 104-113 (1995) - Directs that agencies will use *voluntary consensus standards*
- The *DHS Standards Executive* appointed by Secretary Ridge in 2004 is the Director of the Standards Portfolio
- DHS will leverage expertise and resources of our partners at NIST and in the private sector (ANSI) to develop voluntary consensus standards

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Multiple Layers of Standards Requirements

- High visibility interagency issues (decon standards, cyber security, biological countermeasures, communications, biometrics)
- Cross-cutting issues within the new Department (emergency preparedness, first responder equipment, risk assessment)
- Infrastructure support for standards for components (data standards, cyber for CIO; mission support Coast Guard, FEMA, TSA, Secret Service)

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Strategic Partners for Standards

- Interagency Agreement with National Institute of Standards & Technology (NIST)
- Coordination/collaboration with specific agencies
  - DOE for RadNuc Countermeasures
  - DOD, CDC, USDA, FDA, EPA for bio countermeasures
  - DOJ/FBI, DOS for biometrics
- Alliance with American National Standards Institute (ANSI) and 300 + Standards Development Organizations (SDOs)

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Standards Portfolio: Approach

- National standards - to be accepted – must have the attributes of “credibility” and “consensus”
- Development of national standards is an enduring federal responsibility
- DHS Standards Portfolio has a dual track approach:
  - Establishment of a permanent infrastructure for measurements and standards
  - Proactive, fast-track development of standards to meet urgent national needs in Homeland Security

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Department Standards Management

Outreach activities

- OMB requirement: *Standards Executive* serves as DHS representative to Interagency Committee on Standards Policy (ICSP)
- OSTP requirement: Support the Under Secretary S&T on the NSTC Subcommittee on Decon Standards
- Private Sector liaison: Serve as the DHS representative to American National Standards Institute (ANSI) Homeland Security Standards Panel (HSSP)

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Interagency Subcommittees for Decontamination Standards

Office of Science and Technology Policy/NSTC Subcommittee on Standards/Subcommittee on Decontamination Standards and Technologies

- RDD/IND Protective Action Guides
- Chemical Decontamination Standards Working Group
- Biological Decontamination Standards Working Group
- Decontamination R&D and Technologies Working Group
- Human Decontamination Standards Working Group

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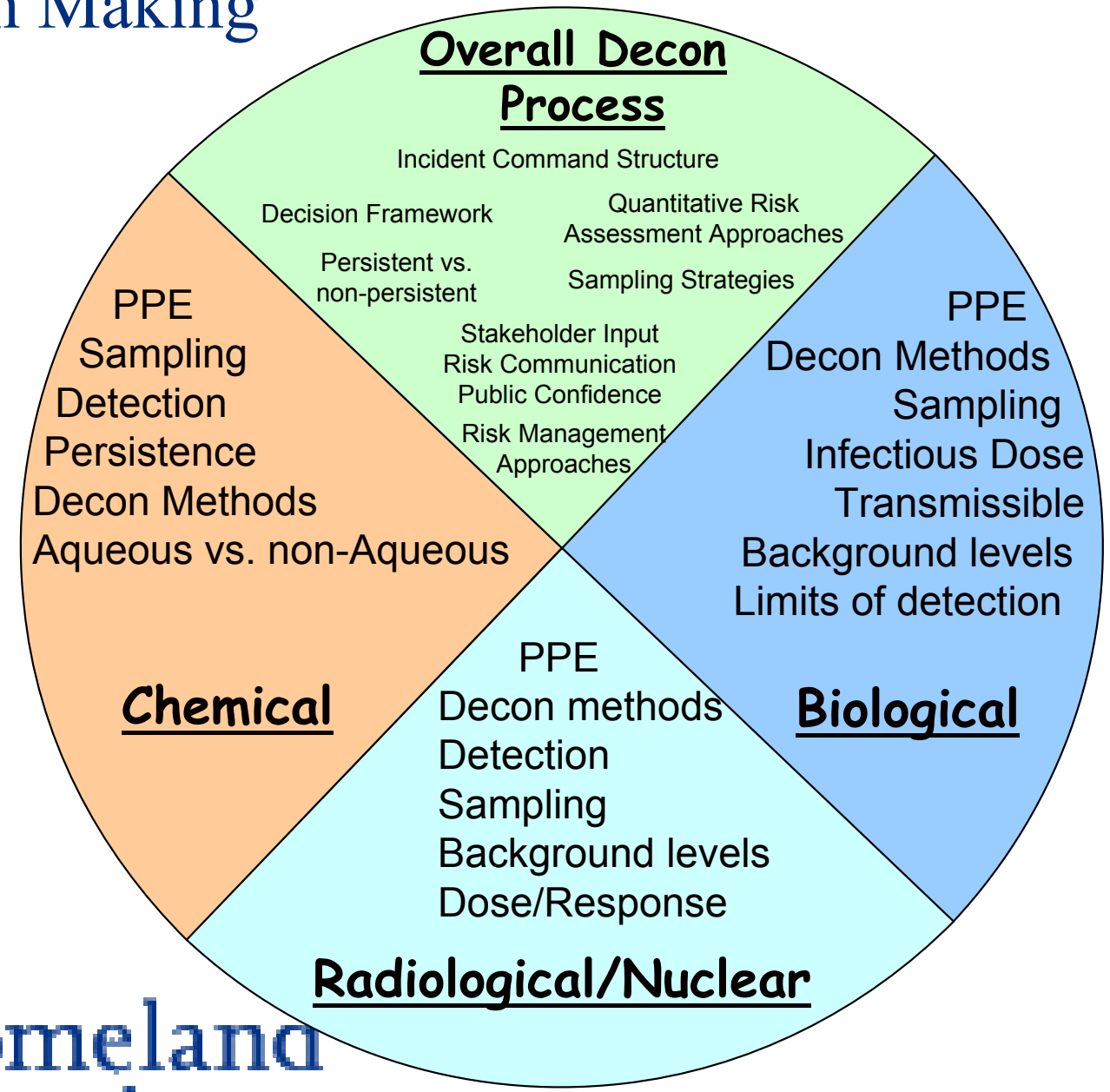
Common Factors Across CBRN for Decontamination Decision Making



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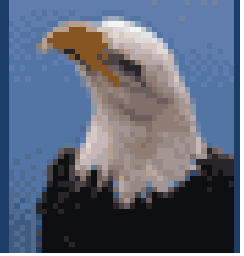
American National Standards Institute

HOMELAND SECURITY STANDARDS PANEL



- To identify existing consensus standards, or, if none exist, assist DHS and those sectors requesting assistance to accelerate development and adoption of consensus standards critical to homeland security.
- The ANSI-HSSP promotes a positive, cooperative partnership between the public and private sectors in order to meet the needs of the nation in this critical area.

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ANSI
American National Standards Institute

Standards Portfolio: Four Major Thrust Areas

- **CBRNE Countermeasures (Detect, Respond, Recover, Decon, Forensics)**
- **Emergency Preparedness and Response**
- **Borders and Transportation Security**
- **Information Assurance and Infrastructure Protection**

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Standards Working Group

- **Portfolio Manager**
- **Working Group Chair**
- **DHS S&T principals (PPB, ORD, HSARPA, SED)**
- **DHS Components with direct interests (e.g., OSLGCP, TSA, FEMA….)**
- **NIST**
- *Other USG, State & Locals*
- *Standards Development Organization (SDO)*
- *Private Sector*
- *Universities*
- *Trade associations*

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A National Strategy for Developing Standards: Rad/Nuc Standards

- Start with a core Working Group internal to federal government to identify existing programs, facilities and capabilities
- Expand the Working Group to include private sector manufacturers, testing laboratories, academics and standards development organizations
- Ensure that the Working Group has the management attention and resources available
- Set a fast track for standards development and choose managers that can keep standards efforts on schedule
- Arrange to have the standards announced at public meetings by senior staff of the Department of Homeland Security

September 6, 2002 NIJ

October 2002 CIRMS 2002

ANSI N42 HPI 2002-2003

JFK Airport Feb. 2004

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First DHS Radiation Detector Standards

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Public Private Partnership for Homeland Security Standards

- Stakeholder involvement is critical to developing consensus standards
- Standards and measurements contributions from NIST are essential across the full spectrum of S&T tools
- NIST laboratories view challenges and opportunities through the lens of the customer at DHS, DOD or HHS

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Public Private Partnership for Homeland Security Standards

Unclassified

Sensitive but Unclassified

Sensitive/Classified

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Three Examples

- Multimodal biometrics for travel documents
- HAZMAT sampling and field detection of suspicious bio-threat agents
- Advanced technologies for screening cargo for nuclear and radiological materials

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MBARK

Multimodal Biometric Accuracy Research Kiosk

- **MBARK** is an externally deployable, multimodal biometric acquisition and information system.

- Addresses two major current shortcomings used to collect and maintain biometric data along with its defining characteristics. Selective multi-modal biometric datasets collected via MBARK will be
  - **sequestered for use in biometric system evaluations.**
  - **distributed to the scientific and research communities (only a fraction of the complete database).**

- First goal: Collect two sets of biometric data on 10,000 subjects, six months apart.

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MBARK

Multimodal Biometric Accuracy Research Kiosk

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HAZMAT sampling and field detection of suspicious bio-threat agents

- Validation of Hand-held Immunoassays (HHAs) for detection of *Bacillus anthracis* in a visible powder
  - Establish performance metrics / acceptance criteria
  - Formal validation of method in laboratory and field
  - Develop standard operating procedures / concept of operations
  - Develop training requirements and module
- Evaluation of Additional Pre-Screening Tools for Suspicious Powders
  - Five Step Method
  - Advanced Protein Screening Kits
- Development of Sampling Standard for Visible Suspicious Powders (ASTM/AOAC Standard)
- Evaluation of biological reference materials and simulants

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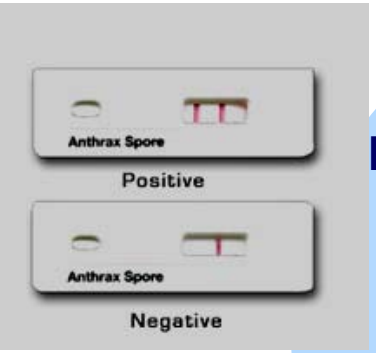
Intersection of Performance Standards, SOP's and Training



Standards

- Performance Specifications
- Testing & Evaluation
- Operational testing
- Certification (Conf. Assessment)

SOPs

- Situational Awareness
- User requirements
- Reach-back capabilities
- sampling
- Federal, state, local policy

Training

- Curriculum Development
- Equipment Specific Training
- Operational training
- Credentialing

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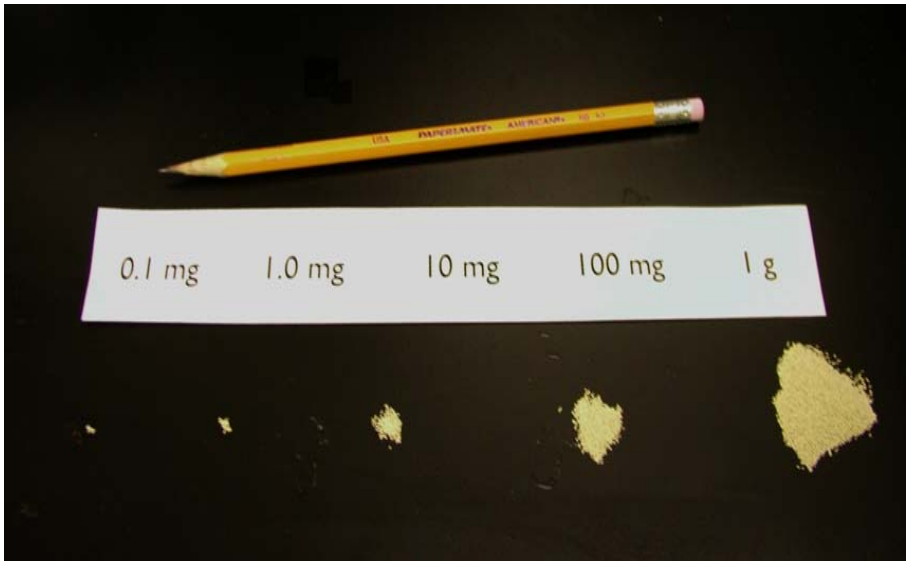
Standard for Sampling of Visible Suspicious Powders



DHS along with NIST, AOAC and ASTM E54 and other federal and state partners is developing a *best practice* standard for sampling suspicious powders.

- Partners include DHS, DoD, CDC/NIOSH, EPA, FBI, NIST, State and Local Public Health Laboratories, State and Local First Responders
- Draft Standard has been submitted to ASTM
- Standard aims to ensure that samples considered to be credible biological threats preserved, collected, packaged, and transported in the appropriate manner

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DNDO has begun test and evaluation at an interim facility at the Nevada Test Site

ASP Interim Test Site During DT-2

Vendor Set-up at DT-2

CBP Set-up at DT-2

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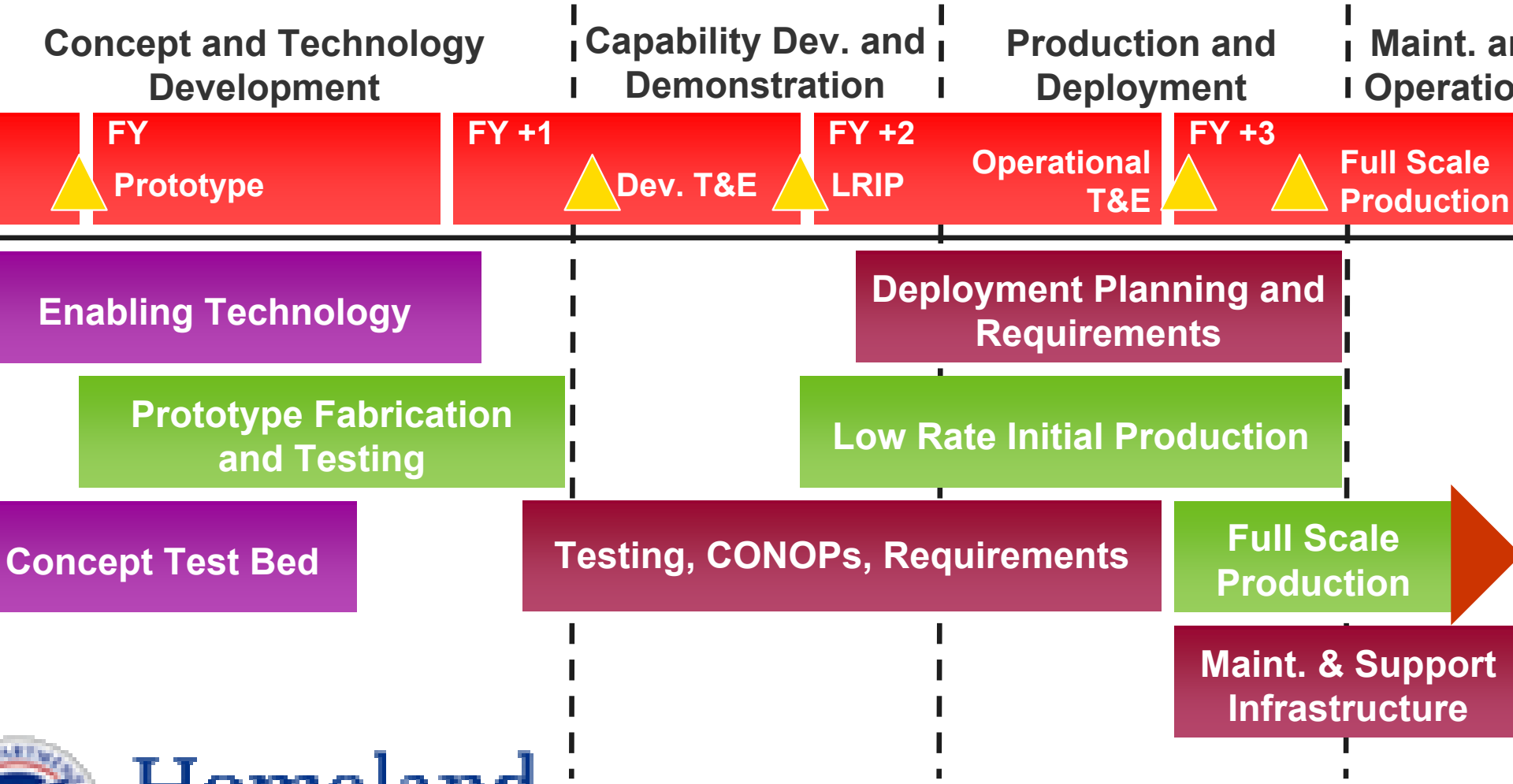
Systems Development and Acquisition Programs Follow a Consistent Methodology



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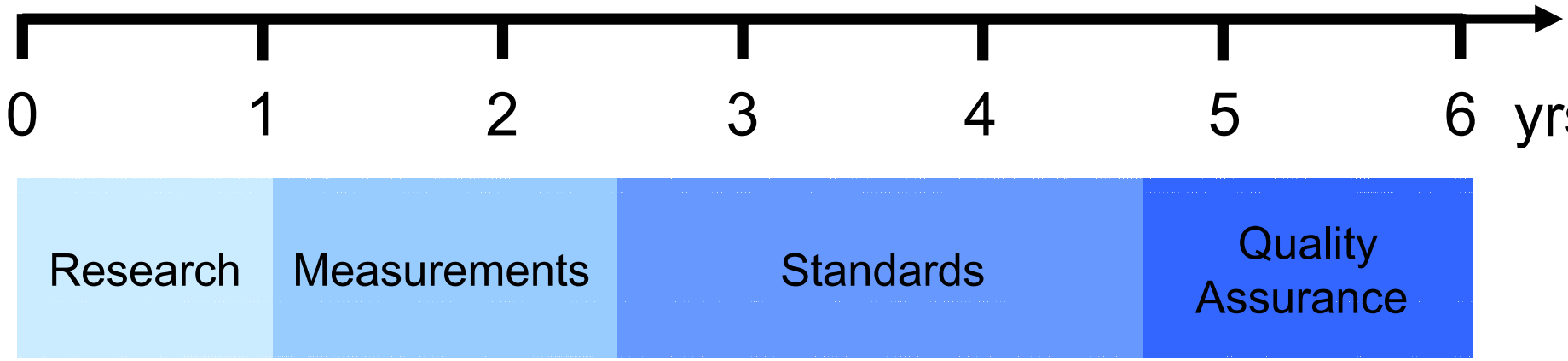
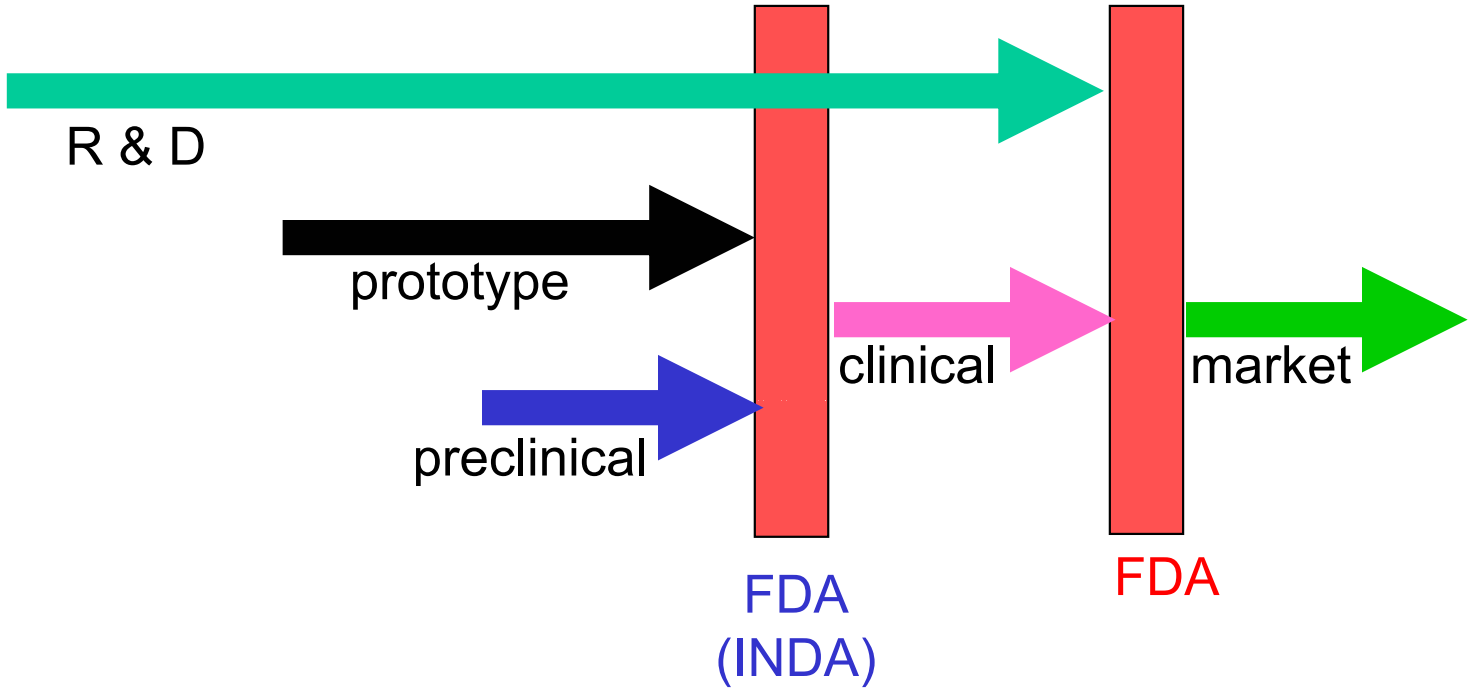
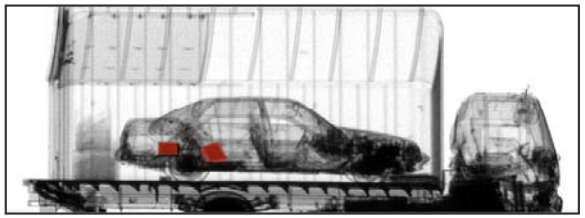
Representative Product Timeline for Medical Devices





Advanced technologies for screening cargo for nuclear and radiological materials



- ANSI N42.38 – Standard for Spectroscopy Based Portal Monitors for Homeland Security Applications
- ANSI N42.40 - Standard for Performance Criteria for High-Energy X-Ray Inspection Systems
- ANSI N42.41 - Performance Criteria for Active Interrogation Systems used for Homeland Security

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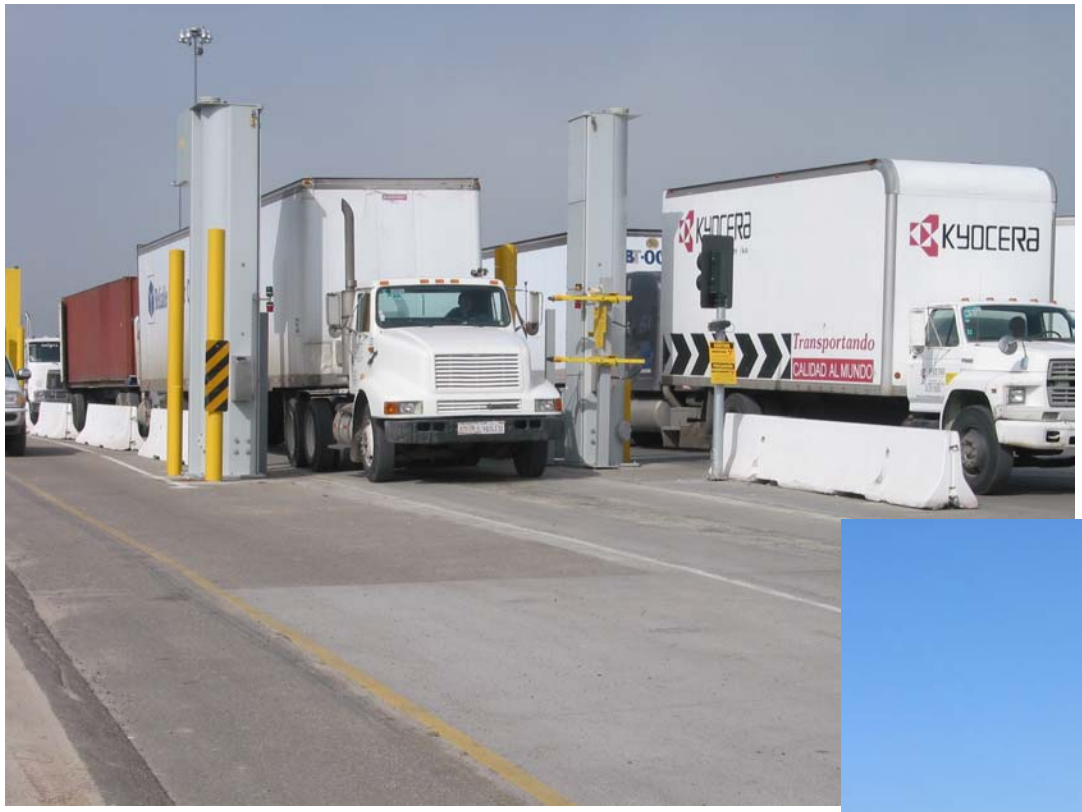
Gamma-ray Scanning and X-ray Radiography



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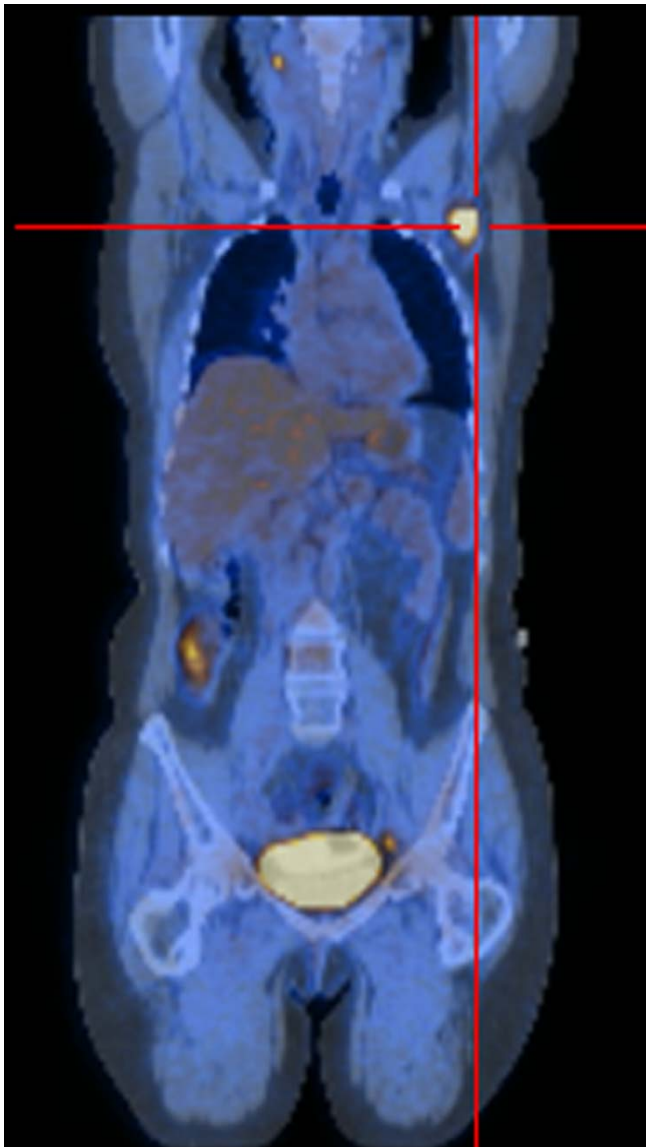
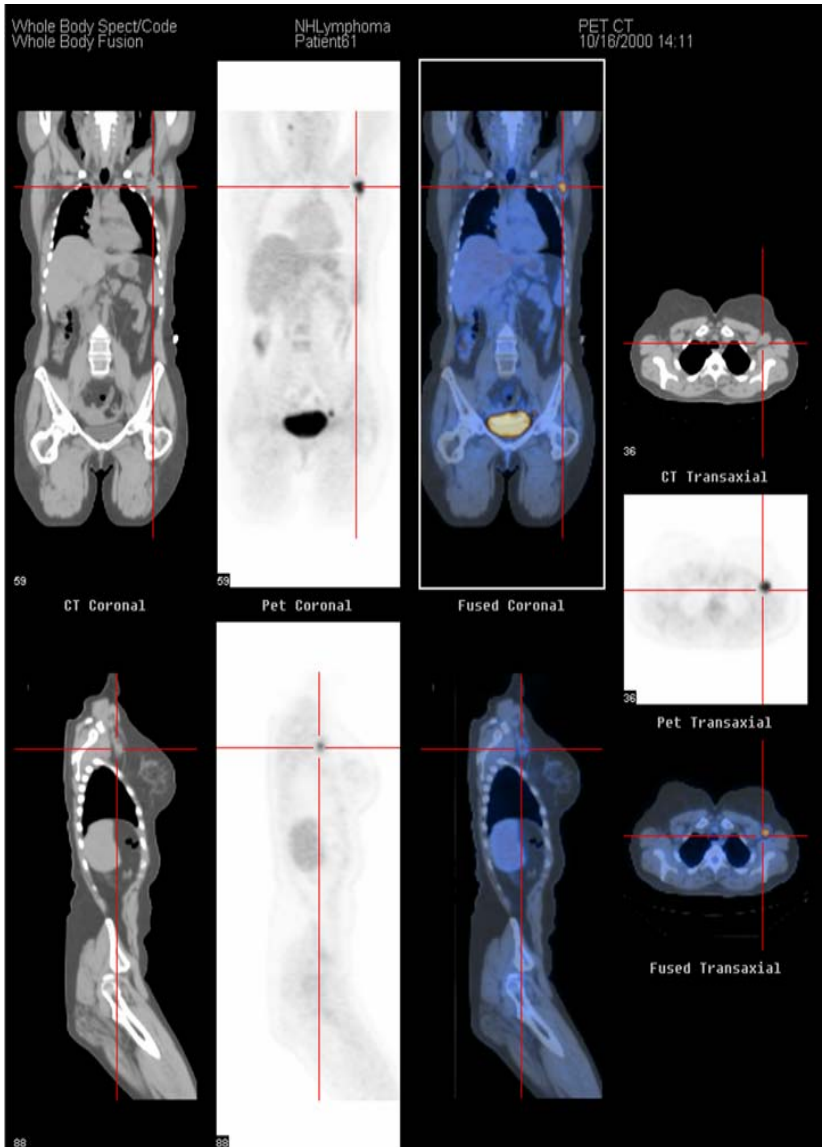
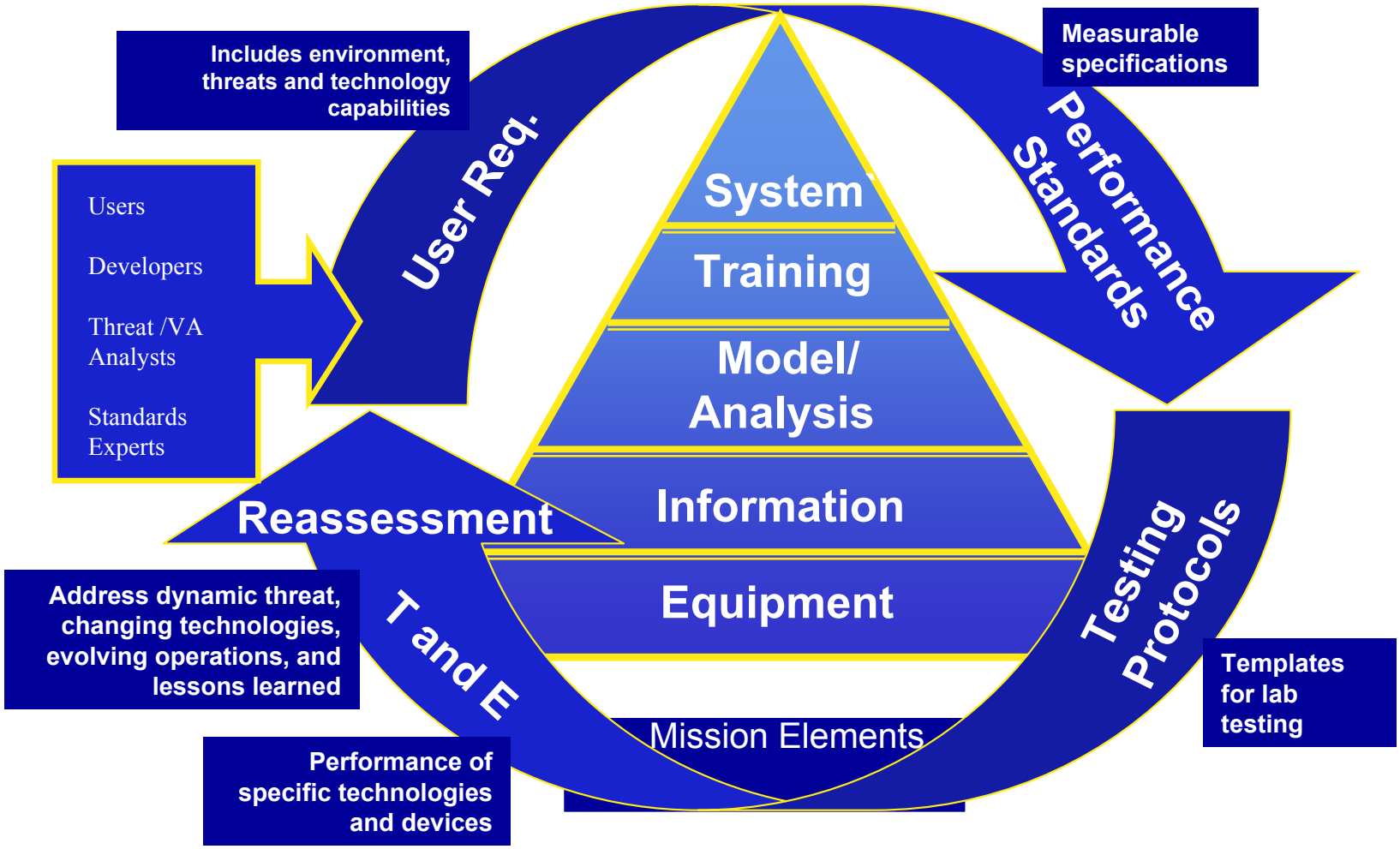
Hybrid Imaging: PET and CT

General Electric Medical Systems





Standards Portfolio Process



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Summary
Critical NIST Contributions to Homeland Security

- Leadership in setting a national agenda
- Honest broker for public-private partnerships
- Leadership & coordination on voluntary consensus standards
- Enabling metrology for new technology (reference data, materials, methods)
- Testing & Evaluation protocols
- Laboratory accreditation & certification for products and processes

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